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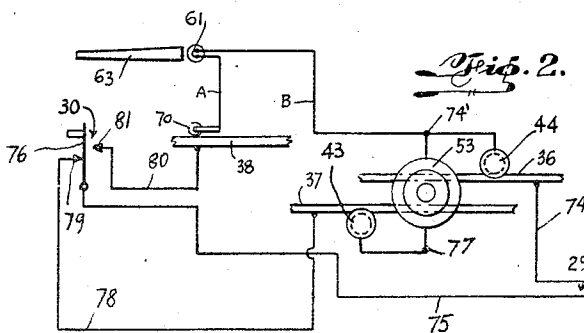
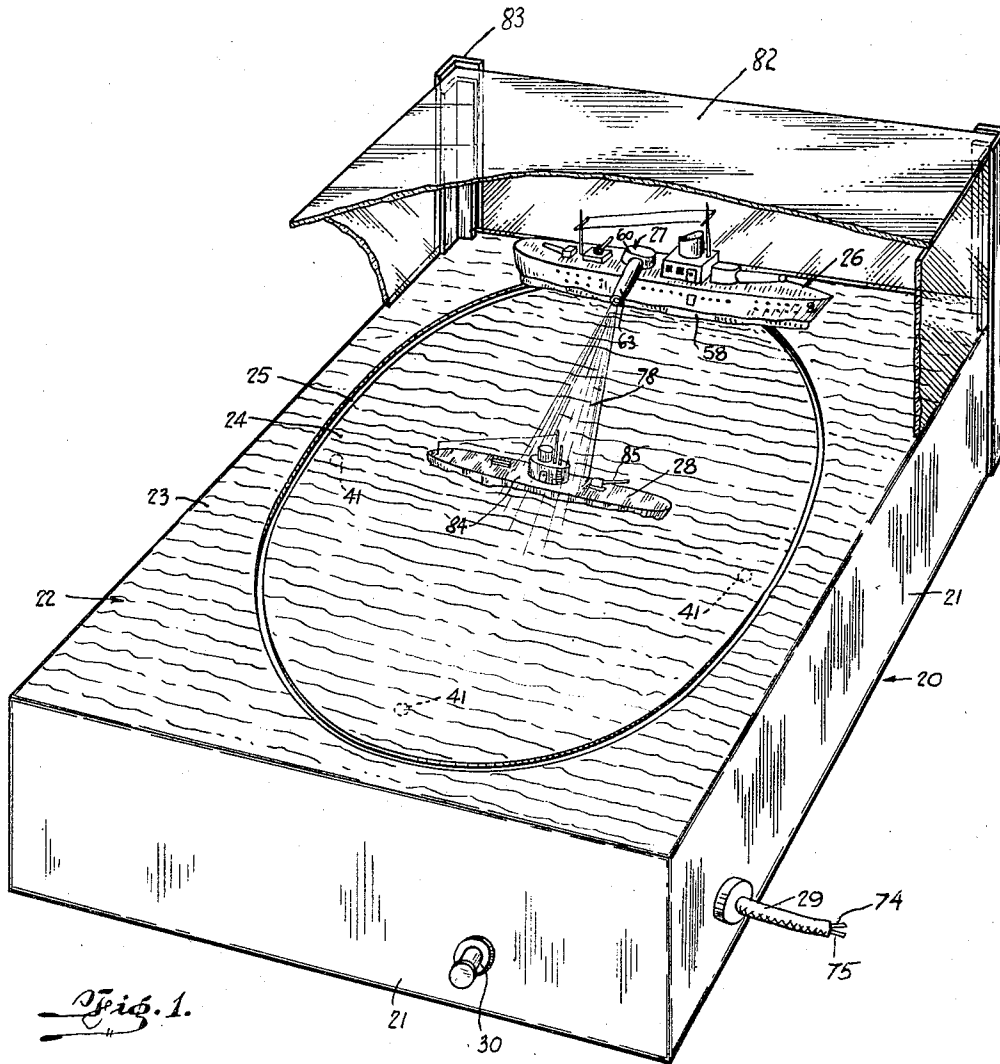
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TARGET AND LIGHT RAY PROJECTOR

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TARGET AND LIGHT RAY PROJECTOR

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The present invention relates to toys and games and, more particularly, to a target game wherein a gun or projector is to be triggered or flashed when aiming at a given target.

An object of the invention is to provide a game in which one or more participants may determine their skill in aiming at a target.

Another object of the invention is to provide a game in which a gun or projector is moved automatically relative to a target and is arrested on being triggered, indication being simultaneously given whether or not the gun is aimed correctly in the position in which it was triggered.

A further object of the invention is to provide a toy in which a gun or projector simultaneously executes two different movements relative to a stationary target, the projector being adapted for the emission of a beam which is normally suppressed and may be triggered on to strike the target at an instant selected by the operator, indication being given whether or not the projector is positioned correctly at the said instant.

A more specific object of the present invention is to provide a toy wherein there is simulated a rocking ship in motion upon the high seas, the ship carrying a horizontally swinging turret and gun controlled by a track located in the body of the device and the turret carrying an electric light source controlled by a switch or button which may be operated intermittently to simulate flashes from the gun upon a stationary target.

The above and other objects of the invention will be apparent from the following detailed description of an embodiment of the invention, taken in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of a toy or game incorporating the invention;

Fig. 2 is a circuit diagram of the electrical connections provided in the device of Fig. 1;

Fig. 3 is a plan view of the device with the top portions removed;

Fig. 4 is an enlarged sectional elevation of the ship and gun turret operating mechanism;

Fig. 5 is a sectional view on line 5-5 of Fig. 4;

Figs. 6 and 7 are sectional views of the electric contact rails and a pair of wheels associated therewith;

Fig. 8 is a sectional view taken on line 8-8 of Fig. 4;

Figs. 9 and 10 are fragmentary sectional views of a different pair of wheels, similar to those shown in Figs. 6 and 7.

Fig. 1 shows a box 20 having four sides 21 and a top generally indicated at 22, the top being

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made in two portions 23, 24 separated by a generally elliptical channel 25 through which the movements of the ship 26 and the turret 27 are controlled. The center panel 24 has mounted thereon a target, such as a submarine 28. A two-conductor cable 29, entering one of the side walls 21, connects the device to a source of operating power which may be a wall socket (not shown), a button or switch 30 being located on one of the other side walls 21.

As illustrated in Figs. 3-5, the box contains the two elliptical ship guiding rails 36 and 37, which are parallel to each other and aligned with the channel 25, as well as the irregularly contoured gun turret rail 38. The rails 36, 37 and 38 are also the carriers of electric current. Rails 36 and 37 may be supported from the bottom by spaced insulating brackets 40, while the gun turret rail 38 may be supported from the pins 41 (which also carry the center panel 24) by means of insulating brackets 42.

Mounted on the two rails 36, 37, as best seen in Fig. 4, are two pairs of wheels 43', 44 and 43, 44', respectively. A frame 54 carries a motor 53, the wheels 43, 43' being held on the frame at the left of motor 53 and the wheels 44, 44' being held on the frame at the right of the motor. The motor 53 drives a gear 55 which meshes with a larger gear 56 mounted on a common shaft S with the wheel 43. A similar gear 56', mounted on a common shaft S' with the wheel 43', is in mesh with gear 56 so that the two wheels 43, 43' will rotate in opposite directions. The four wheels 43', 44, 43 and 44' are shown separately in Figs. 6, 7, 9 and 10, respectively, and may be of identical construction as shown; thus wheel 43 comprises a metal body 49 and an insulating portion 50, wheel 44 comprises a metal body 51 and an insulating portion 52, while wheels 43' and 44' are composed of corresponding portions 49', 50' and 51', 52', respectively. Also, the rail 36 is composed of metal contact portion 45 and an insulating portion 46, while rail 37 consists of a metal contact portion 47 and an insulating portion 48. As clearly seen in Figs. 6, 7, 9 and 10, the various metal portions and insulating portions of the two rails and of the four wheels cooperate with each other in such a manner that only the wheel 43 makes conductive contact with the rail 37 while only the wheel 44 makes conductive contact with the rail 36.

Also secured to the frame 54 is a hollow shaft 57 which passes through the channel 25 of the cover 22 and connects with ship 26. Ship 26 is

preferably provided with an apron 58 of colored cloth, fabric or the like which blends with the design of the surface of cover 22, thus filling the space between the ship and the top 22 during the transversely rolling motion of the ship.

Disposed within hollow shaft 57 is the turret shaft 59, carrying on its upper end the turret 60 within which is located the socket 62 carrying a source of light 61. A gun barrel 63 is removably mounted at 64 and may carry a lens 65 to concentrate the beam 73 (Fig. 1) emitted by the light source 61. The shaft 59 carries the two wires A and B to the socket housing 62a, wire A connecting with the rocker and current take-off arm 66 while the wire B connects with one of the terminals 74' (Fig. 2) of motor 53. The take-off arm 66 is held against the rail 38 by the tension of a spring 67, one end of which is secured to a pin 68 projecting from the shaft 57.

A slot 69 in the shaft 57 permits the protrusion of the arm 66 which may carry a wheel or roller contactor 70 at its end adjacent rail 38. The rail 38 is provided with horizontally disposed irregularities 71, thus causing the turret to swing back and forth as the ship 26 travels around its course. The rails 36 and 37 have vertically disposed undulations, as clearly seen in Fig. 4, to simulate waves upon which the ship bobs up and down whereby a rolling motion will be imparted to the ship 26 as it travels along those rails. The turret shaft 59 may rest on a ball 72 facilitating the swinging movement of the gun turret 27.

The operation of the device according to the invention will be clearly understood from a description of the circuit diagram of Fig. 2 in which elements previously described have been given the same reference characters as in the remaining figures. Conductor 74 of cable 29 is connected to the rail 36 while conductor 75 of the cable is connected to the tongue 76 of the switch 30. Thus, in the normal position of the switch as shown, a circuit may be traced through the motor 53 which leads from conductor 74 over rail 36 and contact wheel 44 to the terminal 74' of the motor, thence from terminal 77 over contact wheel 43, rail 37 and conductor 78 to a back contact 79 of switch 30, and finally from the tongue 76 of that switch back to conductor 75 of cable 29. When the switch 30 is actuated (as by pressing the button in Fig. 1), the above circuit is broken at the back contact 79 while a circuit is closed through the source of light 61, said circuit extending from the terminal 74' over conductor B, source 61, conductor A, roller 70, rail 38, conductor 80, front contact 81 of switch 30 and tongue 76 of that switch to conductor 75. It will thus be seen that the motion of both the ship 26 and the gun turret 27 will be arrested whenever the switch 30 is operated, a beam of light 78 being simultaneously emitted by the gun barrel 63 which beam may either impinge on some portion of target 28 or miss the same, depending on the instantaneous position of the ship 26.

The box 20 may further be provided with a transparent cover 82 which may be secured to the sides thereof by means such as brackets 83. According to yet another feature of the invention, the nature of source 61 may be such that visible or invisible rays or relatively short wavelengths are emitted thereby, said rays being adapted to cause fluorescence when impinging upon a suitably coated surface portion 84 of target 28. Thus the light emitted by the source 61 may be rich in ultraviolet, purple or blue rays which will excite the surface portion 84 whereby visible rays of

greater wavelength, e. g. green or yellow, will be emitted by the target; the transparent cover 82, on the other hand, may have the properties of a filter substantially eliminating the exciting

wavelengths whereby fluorescence of the target as the result of external illumination will be prevented. From the above it will be clear that the term "source of light," as used in this description and in the accompanying claims, includes sources of visible as well as of invisible light rays.

Of the many modifications that may be provided in a device according to the invention, the following may be mentioned: The target 28 may be movable rather than stationary as in the embodiment described. A gun (e. g. 85, Fig. 1) on the target may be coupled with means for automatically rotating the same, in similar means as the gun 27 of ship 26, and may be operated by an opposing player to strike a target on the moving ship 26 in the same manner as described for the gun 27 and the target area 84; the sense of rotation of the target 28 and/or the gun 85 may be opposite to the direction of revolution of the ship 26. Finally it will be possible to use photo-sensitive equipment, in a manner well known per se, to register a "hit" on the target; also, different target areas may be designated in different manner to give varying ratings for "hits" impinging on different parts of the target.

Thus, although the invention has been described with particular reference to a single, now preferred embodiment, it should be distinctly understood that any of the above and various other modifications and adaptations are possible without in any way exceeding the spirit and scope of the invention as defined in the objects and in the appended claims.

I claim:

1. A game device comprising a substantially horizontal panel having a continuous slot formed therein, a target fixed on said panel with said slot encircling said target, vertically undulating guide means underlying said slot, a carriage below said panel having longitudinally spaced supporting wheels engaging said guide means whereby said carriage is displaced vertically and rocked as it moves around said guide means, a vertical shaft rotatably carried by said carriage and projecting upwardly through said continuous slot, a radially directed light projector carried by said shaft above said panel and swinging horizontally when said shaft is rocked, means rocking said shaft as said carriage moves around said guide means, electrically powered motive means for moving said carriage around said guide means, a source of light in said projector, a source of electric power, and means selectively and alternately connecting said motive means and said source of light to said source of electric power whereby energization of said source of light is accompanied by de-energization of said motive means.

2. A game device according to claim 1, wherein said guide means includes a pair of electric conducting continuous superposed vertically spaced undulating tracks, and wherein said carriage includes a pair of longitudinally spaced flanged wheels riding on top of the uppermost of said tracks and a pair of longitudinally spaced flanged wheels engaging the underside of the lowermost of said tracks.

3. A game device according to claim 2, wherein said means rocking said shaft includes an electric conducting continuous horizontally undulating rail running adjacent to said tracks, a radi-

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ally extending arm fixed on the lower end of said shaft, a roller on the end of said arm, and spring means constantly urging said roller against said rail.

4. A game device according to claim 3, wherein one of said wheels in each of said pairs establishes electrical contact with the related track and said motive means consists of an electric motor operatively connected to at least one wheel in each of said pairs of wheels; and wherein said means selectively and alternately connecting said motive means and said source of light to said source of electric power includes a switch having a pair of spaced fixed contacts and a movable contact normally urged against one of said fixed contacts and movable away from said one fixed contact into engagement with the other of said fixed contacts, electrical conducting means connected between said source of electric power and one of said tracks, electrical conducting means connected between said source of electric power and said movable contact, electrical conducting means connected between said one fixed contact and the other of said tracks, electrical conducting means connected between said one wheel in each of said pairs of wheels establishing electrical contact with said tracks and said electric motor whereby said electric motor is normally energized for moving said carriage and projector along said

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tracks, electrical conducting means connected between said source of light and the one of said wheels contacting said one of said tracks, electrical conducting means connected between said source of light and said roller, and electrical conducting means connected between said rail and said other of said fixed contacts whereby said source of light is normally deenergized and whereby movement of said movable contact away from said one of said fixed contacts and against said other fixed contact will open the circuit through said electric motor and close the circuit through said source of light for energizing the latter.

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